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THE CONCEPTION OF "SOUL"

THE evolution of the idea of a "soul" is one of the most interesting and curious chapters in the history of human thought, having an enormous influence not only upon our religious, but also upon our philosophical and scientific, conceptions. As this development is especially pertinent to some matters under current discussion, I present some reader's notes on the topic—with no thought, of course, that my sketch is more than provisional.

I

(*a*) *As the "Life."*—Australian Blacks and Zandeh Negroes alike believe that nobody dies a natural death (and see to it that this is usually the case, being energetic cannibals!). The *life* is purely physical; by eating the body one absorbs the life. But corpses are realities; the life is separable from the body: hence this separable life is an entity by itself; it is a *soul*. Of course, plants and animals, as well as men, have souls of this sort. This, in general, is the fundamental animistic notion.

(*b*) *As the "Life-Blood."*—The separable soul is naturally—and, where the mind is incapable of abstract ideas, necessarily—thought of as a physical or material substance. For obvious reasons, one of the earliest and most inalienable identifications is of *soul* and *life-blood*. Our very phrase "life-blood"; the notion of its physical perpetuation in "consanguinity," "of the blood"; the notion of its transmission in "blood brotherhood"—all point to this primitive identification.

The blood is "the fountain of life." Plutarch states that previous to the reign of Psammetichus the Egyptian priests were unused to drink wine, or even to offer it in libation to the gods, for they regarded it as the blood of those who had warred against the gods; which, falling to earth and mixing therewith, became the seed of vines. It is on account of this, said the Egyptians, that drunkenness drives men mad, they being, so to speak, filled with the life-blood of

their ancestors. This is an obvious explanation of the hurtfulness of "wine when it is red," of its sacramental vicariousness, of the divine possession of the Dionysiac.

A more primitive and explicit idea is that which Berosus states as held in Chaldæa, that all life, human and animal, is derived from the blood of a decapitated deity mixed with clay—which recalls the whole group of myths in which procreation of life follows bloody mutilation. It accounts also for such tabus as are apparent in "kosher" slaughter: "But flesh with the life thereof which is the blood thereof, ye shall not eat." The Arabs speak of "the life" that flows forth upon the spear-point; and we still have the saying that "blood calls for vengeance." Says King James ("Dæmonology"): "In a secret murther, if the dead carcass be at any time thereafter handled by the murtherer, it will gush out of blood, as if the Blood were crying to Heaven for revenge of the murtherer."

(*c*) *As the "Breath of Life."*—Gen. ii. 7: "And the Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living soul." Many of the words meaning "soul" are derivatives from roots signifying "breath," "wind." Such are Hebrew *nephesh,* Greek ψυχή, πνεῦμα, Latin *spiritus, anima.* The derivation offered for *am, are,* present of *be,* from a root meaning "breathe," is interesting in this connection. The invisibility, intangibility, fleetness, and ubiquity of the soul are naturally associated with this conception—perhaps as primitive as any.

(*d*) *As Wind, Smoke, Fire.*—Closely associated with the preceding is the body of analogies drawn from air and fire. "He opened the earth, and the spirit of Eabani he caused to rise up like a wind" (Jastrow's translation). This simile from the Babylonian epic literature recalls the Jinni of the "Arabian Nights" issuing from the flask in the form of a smoky cloud. In Beowulf the cremation of a hero is described *gûth-rinc âstâh,* "the hero *ascended";* and it is quite possible that the conception underlying cremation is that the smoke of the consumed body bears the spirit aloft, as the smoke of the burnt-offering bears the savor of life to the divinity. At all events, the flammulæ, nimbi, haloes, and the like, which in Occident and Orient denote spiritual endowment, are an obvious indication of a primarily material conception of the soul.

(*e*) *As Shade, or Shadow.*—Egyptian *chaibit,* Greek σκαί, Latin *umbra,* like the Zulu *zitunzela* (from *izitunzi,* shadows), are all terms illustrative of the idea that the man's shadow is his soul, current in European poetry since Homer, though with Homer less a figure of speech than a description of spiritual reality.

(*f*) *As Phantasm.*—The notion of the soul as a shadow is the

natural precursor—aided, no doubt, by dream images and hallucinations—of the conception of a phantasmal duplicate of the body, visible, but normally intangible, and evanescent. The phantasmic soul is often a manikin, though it may be an exaggeration of the physical form. The Greek εἴδωλον, Latin *simulacrum,* the English *fetch, wraith, doubleganger* (respectively of Celtic, Norse, and Scottish origins, I believe) are instances. So also is the "astral body" of the theosophists. The *ghost,* though originally like the Greek κήρ, probably "the one who tears, wounds," is currently conceived as spectral and phantasmic in his visitations.

II

(*a*) *Soul and Body.*—Thus is developed the conception of a being closely associated with the body, intervolved with bodily life, yet detachable from the body—*"hospes comesque corporis."*

The Papuans "all believe that within them resides an invisible other self, or spirit, which, if it occasionally wanders for a hurried tour from its home in the hours of sleep, goes forth for good at death, to hover for some period at least round the scenes of its embodied life before departing for some lone island or inaccessible summit." Zulu souls "may occupy the roof of a man's hut, and if he changes his abode his soul flits also." It is the Fijian (if my memory serves) who secretes his soul at home as a precaution for his own safe return from battle. And so on *ad infinitum.*

The *whole man* is the union of body and soul—the *life,* or the *spirit, incarnate;* and each of the two elements suffers in power from the separation. This is the normal view, and certainly the primitive one. But as ideas magnify, each of these elements assumes its own special importance.

The relative importance of the bodily element and the unimportance, or at least inefficiency, of the spiritual, is the elder notion. The discarnate soul is naked and shivering, lacking the warmth of life—

"Errant exangues sine corpore et ossibus umbrae."

At death "the spirit flies forth like a dream," says the mother of Odysseus; it is sinewless and fleeting, and even its voice is reduced to mumblings and mouthings; the shades are "gibbering shades" and the "ghostly voice" is only a fainting replica of human utterance—

"And ghosts did shriek and squeal about the streets,"

is Shakespeare's phrase. The Scandinavian "little people" are souls awaiting their turn to be clothed in human flesh; and the whole notion of metempsychosis is founded upon the incredibility—ethic-

ally, at least—of a lastingly disembodied life: it could *do nothing* for the world, and so is unthinkable.

The ineffectiveness of disembodiment seems to extend even to superhuman beings. At all events, the *blood offering* is best to be explained as an effort to nourish the immaterial "spirit" with the more substantial "life." "I took the sheep," says Odysseus, "and cut their throats over the trench, and the dark blood flowed forth, and lo, the spirits of the dead that be departed gathered them from out of Erebus." Neoptolemus, in offering Polyxena to the shade of Achilles (Euripides, "Hecuba"), cries: "Drink the maiden's blood, black and unmixed!" The pursuing Furies, in the "Eumenides," "delight in the odor of man's blood"—their vital nourishment.

A higher grade of respect for spiritual power, at least in its conjunctive augmentation of the bodily, appears in the group of beliefs which concede the possession of a proper soul only to the more efficient persons. The Negresses of Darfur are forbidden to eat liver, because they have no souls. A Basoga chief, pointing at a peasant, exclaims: "He have an immortal soul! I can not believe it; but I will admit that perhaps Wakoli or Luba had a soul. Wakoli had four hundred wives!" Among some Polynesians only the nobles are believed to possess souls. We recall the reassurance of the pirates in "Treasure Island": "Nobody minds Ben Gunn, dead or alive, nobody minds him."

The power of the spirit is more distinctly recognized in the conception of it as a guardian spirit which hovers about the body, or appears at necessity to render aid. The *genius* of the Roman is the type of such a being, exemplified again in the *fravashi*, who looks after the interests of the Persian "in the presence of Ormazd"—very much, we may suppose, as the Fijian's soul preserves him from battle danger.

It is but a step from this idea to that of the soul's superior power and worth, which is the root of the ascetic despisal of the body. The body becomes "the spirit's house" or "the garment of flesh" and is misused accordingly. The Egyptian priests, according to Plutarch, avoided fatness for the reason that they wished their bodies to sit lightly and easily about the soul, not pressing upon and weighing down the immortal and divine with a merely mortal part. This is but the material root of the later idea of the soul as a prisoner of the flesh to be set free at death.

(*b*) *Survival of Bodily Death.*—A soul which is first conceived as separable from the body, later as hardly more than accidentally connected with the body, and finally as the essential, but independent cause of bodily life, can not but be conceived as surviving bodily decay. Some, to be sure, have conceived the soul to survive the

death, but not the destruction of the body. This appears to have been a Stoic notion—the soul being held to survive, on an irrational plane, until the body was entirely resolved into its elements. Theosophists of our own day hold some such notion in regard to the phantasmal soul which they recognize. And it must be confessed that there is a kind of ghastly plausibility of this view in the apparently decaying personalities of some of the mediumistic communications of the research societies. Nevertheless, advance in civilization has, on the whole, been attended by the development of more refined and convincing conceptions, founded upon ethical rather than material reasons. And it has been the affair of the science of psychology to give content to the more advanced ideas of spiritual being.

(*c*) *"Anthropology."*—Both the spectacle of a lifeless body and the belief in a living, though soulless body, or in a bodiless, though inefficient soul, lead to the conception of a *complete man* combining body and soul. The science of man's nature, in this full sense, the Schoolmen named "anthropology," leaving "psychology" as the branch concerned with the analysis of the soul's life alone.

The most primitive type of such an anthropology is that formed by combining the various conceptions of soul, almost universally developed, with the idea of the body, the name, and such other notions as center in a personality. Thus the Indian prophet Keokuk instructed his followers to pray for the heart, the flesh, the life, the name, the family. The Persians distinguished in man the body, the life, the soul, the form, the genius; and the Egyptians—who seem never to have relinquished an idea, no matter how primitive, once it had gained a mental hold—analyzed the personality of the deceased into mummy, genius, bird-soul, heart, form, shadow, soul, strength, name, assigning separate destinies and longevities to these numerous divisions.

The ethical conception of a good and a bad inner nature in each individual is often hypostatized, giving two souls in place of two dispositions—a sort of Jekyll and Hyde double personality. Even Plato can say, "there are two souls, a good and an evil"; while the Bagobos are said to carry this idea to the picturesque extreme of consigning the good soul to Heaven, the bad to Hell, in the dissociation which the future world is to bring about.

(*d*) *The Partitive Soul.*—From this plurality of souls it is only a natural step to regard the soul as divided into a number of fairly distinct parts. In our own popular thought there is frequently an entitative distinction between Soul, Spirit, Mind, and Consciousness; and it is to be doubted if the mass of men have outpassed Purchas's conception of the soul as "conflate of the Mind, Spirit, and Animal Soul, or Idolum."

Certainly the strong hold which the old-time "faculty" psychology still retains even upon scientific text-books and treatises, compartmentalizing perception, emotion, volition, reason, etc., is palpable evidence of the vitality of this primitive way of thinking. Nor can it be denied that the physiological analysis of experience given by the "Five Wits," which the miracle plays loved to personify, is in itself a somewhat powerful and striking support to the compartmental mode of conceiving mental life; while in our own day the curious and complicated phenomena of multiple personality have given a semi-scientific ratification of old-fashioned beliefs in multiple entities connected with the same body.

III

Philosophic Conceptions.—The earliest efforts to analyze philosophically the nature of the soul, the earliest psychologies, are as inefficient as the early attempts to analyze nature, committing the same error of carrying simplification to absurdity. Thus for Anaximenes the soul is air; for Heracleitus, fire; for the Atomists, a wraith of fine and impalpable atoms; for Empedocles, the blood about the heart—all conceptions at once related to the ontologies of these thinkers and to the primitive conceptions from which their thought had developed. There is a slight advance in the Pythagorean notion of the soul as a harmony; but it is only with Plato that we attain anything like a scientific psychology.

Plato regarded the soul as immaterial and as partaking of the nature and divinity of ideas. It is related to the body as is harmony to the lyre—apparently the Pythagorean notion. Its faculties are reason, understanding, faith, perception. Here we have the general conception of *an entity endowed with faculties,* which is the model of most later thinking.

Aristotle merely elaborates the Platonic view. A living being is a composite of soul and body, the soul being its formal, the body its material, cause. Soul is the "actuality" of life, it is "the entelechy of a natural body endowed with the capacity of life." Its powers are (1) nutritive or vegetative, (2) perceptive, (3) creative or kinetic, (4) rational or dianoetic. In every organism it is a unit, but it is found in every part of the body.

Aristotle here, as elsewhere, sets the detailed model for the work of centuries; what follows is but minute elaboration of his plans. Says Burton: "According to Aristotle, the soul is defined to be *ἐντελέχεια, perfectio et actus primus corporis organici, vitam habentis in potentia;* the perfection or first act of an organical body, having power of life, which most philosophers approve. But many

doubts arise about the essence, subject, seat, distinction, and subordinate faculties of it."

"The common division," Burton continues, "is into three principal faculties—vegetal, sensitive, and rational, which make three distinct kinds of living creatures—vegetal plants, sensible beasts, rational men. How these three principal faculties are distinguished and connected, *Humano ingenio inaccessum videtur,* is beyond human capacity." Nevertheless, it has not been beyond human speculation.

Augustine described the soul as simple, immaterial, spiritual, devoid of quantity or space. He distinguished in it the *lower* sensuous and appetitive faculties from the *higher* volitional and cognitive; and he made it immortal because it is the repository of imperishable truth. To this the Schoolmen added little except pedantry. Body and soul, according to Aquinas, are coprinciples of the substantial unit which is man, being related as matter and form (Aristotle). Man is defined: *substantia singularis rationalis integra tota in se et sui juris.* The soul is locomotive, nutritive, sensitive, rational (Aristotle once more); with the rational soul as the dominant and immortal part: *anima intellectiva est forma corporis, sed non qua intellectiva.*

Sir John Davies's poem, "Of the Soul," in which he reduces psychology to rhyme, serves up the general hotch-potch in a series of powers which almost rivals Burton, but is better than Burton's analysis in that it reflects more persistent notions. The soul's powers he finds to be the vegetative, those of the "five senses" and that of the "common sense," fantasy, sense memory, passions, powers of movement, intellect, abstraction, reason—almost a modern phrenology. But the real problem is not the analysis, but the spacelessness and at the same time the ubiquity of the soul, and this Sir John resolves with a verbal dexterity that would do credit to the modern absolutistic application of the similar notion to the soul of the universe—

> "So doth the piercing soul the body fill,
> Being all in all, and all in part diffused."

"Others make a doubt," says Burton, "whether it be all in all, and all in every part." But Davies has the tradition back of him, and that is better than intelligibility. He is a fair prophet of Fechner, defining the soul as "the whole unitary spiritual process in conjunction with the whole unitary bodily process."

Fechner is largely the founder of our most modern psychology—but not on the basis of this definition. The truth is that modern philosophy and psychology alike have largely ceased to be concerned with the "soul." Psychology has chosen the more phenomenal

region of mind, or latterly, of consciousness for its province; and while it has sceptically hinted that there may be no *ens spirituale* behind or beneath or beside mind and consciousness, it has mainly left the matter to the safer handling of theologians. Where it is at all frank, it treats the brain as the sole substratum and support of conscious life. This is to be understood of physiological psychology, for which consciousness is merely a bodily habit, or of psychophysics, which sees in mental phenomena merely a convenient index to experimentation.

I think a fair—as well as a shrewd—statement of the modern view is that given by Professor Singer:[1]

"We are barely through those long chapters in the history of science in which the theory of a hot body composed that object of a body plus heat. This heat was first conceived as itself a kind of body—a congeries of small, round atoms; then, since heat did not increase the mass to which it was added, it became the vaguer stuff called caloric. Nevertheless, however ghostly this caloric had become, it still went in and out of bodies like a stuff, fell under the same principles of individuation that bodies fall under, was in short a sort of body, though a mysterious sort of body. We know with what travail this strong, primitive instinct to add was overcome, and men had the courage to say, 'Heat is not something inferred from the heated behavior of a body, it is that behavior.' . . .

"As a hot body is a body plus heat, so a living body is a carcass plus life. The history of this conception is strikingly like that of the previous one. At first the thing added to body to make it alive was another body—the psyche—differing, may be, in certain of its qualities, but still falling under the same principles of individuation, having a history of its own when disembodied. Now, this psyche is reduced where it survives at all to that vague principle called 'the vital,' of which all that can be said is that it is a mystery. Few thinkers cling to this survival; for most of us a living body is a mechanism that behaves in a certain way, one that is well calculated to attain certain ends. Life is no longer a thing to be inferred from behavior; it is behavior, and while it is an aspect of a body's behavior from which other aspects may be distinguished, we no longer think of these aspects as separate. Disembodied life has been placed among the myths."

IV

Bodily and Spiritual Life.—The net result of the conceptual development traced is thus negative. It reminds one of Burton's anecdote in regard to the discussion of the soul's immortality before

[1] This JOURNAL, Vol. VIII., pages 185–6.

Leo X.: "That Epicurean pope, as some record of him, caused this question to be discussed pro and con before him, and concluded at last, as a profane and atheistical moderator, with that verse of Cornelius Gallus, *Et redit in nihilum, quod fuit ante nihil.*" So our analysis shows the conception of soul to begin and end in mythic hypostatization.

Nevertheless this result is mainly an appearance due to the essential cloudiness of abstract thinking. The process has been one of abstraction and reification from the first; coupled, in the more elementary stage, with an identification of the abstracted and reified "life" with some such concrete symbol as the breath or the blood. The "soul," the "psyche," is an ideal emblem, useful in the analysis of experience, but certainly not designating any legitimate non-experiential entity. What it properly means is a kind of fact as simple and direct as any that we know—the fact of personality.

This personality consists in something more than "bodily behavior," even while it is "incarnate" in the body with which it is objectively associated. For "behavior" and "body" represent abstractions of experience quite as emblematic as is "soul." Indeed, if we assume the personal, or shall I say *possessional* attitude toward experience, which is characteristic of philosophy as the impersonal attitude is characteristic of science, then we make rather better sense in speaking of the body as the mind's "behavior" than *vice versa;*[2] for the body is only one among the multitude of "things" which the mind's activity generates—or, if you are a realist, identifies. Of course "the mind," too, is one of these "things"; and so we are brought through the whole circuit of abstractions without any rest in the elusive reality. But this is the general fate of thinking.

The truth is that all our descriptions of life have to be from some point of view—and that an artificial, or at least an arbitrary one. If we happen to be ontologically minded we will think with the Greeks and the Schoolmen in terms of substance and attribute, and soul and body will each be an *ens,* whose function is to *have* and whose nature is to *be.* If we are of a more recent turn we will psychologize experience. The German mode of doing this is primitive and anthropomorphic, but with a peculiar bent, the parent of which is the "faculty psychology." Thus it is that Fichte makes the will —the moral and enlightened will—into the moving cause and the essence of the universe. For Schelling, sensation and imagination set the model. Hegel makes the reason the proper being of all. Schopenhauer, like Fichte, utilizes volition, only Schopenhauer uses a blind and unintelligent will. In each case we have a "faculty" artificially created by psychological analysis erected into the founda-

[2] As witness Strong's "Why the Mind Has a Body."

tion for all the other facts of experience. The characteristic exaggeration of the procedure is nowhere better shown than in a comparison of Fichte and Schopenhauer, each of whom succeeds in creating a universe to his taste by the simple expedient of broadening or contracting the scope of the faculty (the abstraction) which he has chosen to regard as basic. The whole operation is in kind exactly like that of the savage who places the life in the blood.

Nor is the phenomenalistic, or naturalistic, mode of analysis any nearer the facts. When physiological science gives us a "body" as the core of certain "behaviors" we have simply taken old facts from a new point of view. The character of what we have been accustomed to term mental facts is not altered by the new name. The name does, to be sure, give a certain connotation of evanescence and destructibility to the facts, which the older terminology lacks—and this, of course, is the reason for its introduction; but it does not alter the facts nor interfere with other interpretations. For example, entirely intelligible may be that view of life which finds the foundation of its continuity in personality, as life constructs it, rather than in either a perishable body or an entitative soul. Many of our facts, and indeed most of those we care for, are not bodily facts, and are only incidentally associated with the bodily facts. This must not be taken to mean that we have a "dark" history concurrent with our conscious "light," founded upon some dim ulterior being. It means rather that the moments of light, which are the moments of what we call reality, are creative moments whose content and achievement far transcend bodily relations and possibilities. Continuing life means simply continuing experience, and analysis of experience, as in the body we know it, indubitably reveals a more than bodily element which we are justified in terming the spiritual element.

For men will continue to speak and think in the categories of substance and attribute, rest and motion, body and mind, thing and behavior. Generations of practical use have proven the value of these categories: they are simplifications, abstractions, and hence temporary falsifications of fact; but the experience of mankind certainly shows that in the long run their employment leads to clarity and truth and to such general intelligibility as enables efficient living.

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STUDIES IN THE STRUCTURE OF SYSTEMS

3. Postulates

THE structural elements of the classical theory of the deductive system are: *proof, definition, categories, axioms, theorems.* Whilst all these are integral elements of the deductive system, it is "proof," or "deduction," in terms of which the form is defined. A systematic account might therefore be expected to begin with "proof." I find it, however, more convenient to introduce my exposition with a critical account of the main propositions regarding "axioms," because it is through the more patent changes here that the required changes in our theory of "proof" will become evident.

It is interesting that neither the term nor the usual meaning of "axiom" has any place in Plato's philosophy. It is characteristically Aristotelian. Though the Stagirite's theory of the deductive system rests on the basis laid by Socrates—Plato (a fact which is merely obscured by his numerous criticisms of Plato's doctrine), regarding "axioms," he fundamentally differed from the latter. Plato's term is *ὑπόθεσις*, which in its meaning and function corresponds to the modern use of "postulate."

Aristotle's theory of the deductive system is dominated by his conception of "cognition" (*ἐπιστήμη*). Cognition is "necessary," "certain," "apodictical" and implies the idea of a "cause" (*αἰτία*) on which it rests and from which it follows with necessity.[1] A proof (*ἀπόδειξις*) is a syllogism which leads to cognition (*συλλογισμός ἐπιστημόνικος*), and from the point of view of "proving," the syllogism was elaborated by Aristotle as the methodical procedure which determines the "following with necessity." In every proof Aristotle distinguishes three parts: first, that which is proved, the conclusion (*τὸ ἀποδεικνύμενον τὸ συμπέρασμα*); secondly, the *axioms,* from which (*ἐξ ὧν*) the proof proceeds; and, thirdly, the subject whose properties the proof exhibits (*τὸ γένος τὸ ὑποκαίμενον*).[2] But the proof, this mediator of cognition, making the truth of one proposition rest on that of another, can neither move in a circle nor regress indefinitely; it must come to a standstill; there must be a "first" of cognition: secondly, we say: "not only is there cognition, but also a first of cognition (*ἀρχὴ ἐπιστήμης*)."[3] The *ἀρχὴ* is twofold, namely, *ἐξ ὧν* and *περὶ ὅ*.[4] The latter comprises the special presuppositions in each proof, the *δαΐλι*; they are usually interpreted as meaning the "special principles of each science." This interpretation is indeed

[1] Analyt. post. I_2.
[2] Analyt. post. I_7.
[3] *Ibid.*, Chap. 3.
[4] *Ibid.*, Chap. 32.

suggested by the end of Chapter XXXII., referred to above, as well as by the remarkable passage at the beginning of Chapter VII (which anticipates what we are pleased to call the modern insistence on the "purity of methods"). But this interpretation, though supported by the authority of Zeller, is certainly too narrow, for even these "special principles" are "general"; but each proof requires the "particular"; and Aristotle insists that the number of "principles" (*ἀρχὴ*) is not much smaller than that of the "conclusions," and can not be finite if that of the conclusions is infinite.[5] The *ἴδιαι* are therefore not merely the special principles of each "science," but of each *ἀποδευκνύμενον τὸ συμπέρασμα*: wherever there is proof it proceeds, in part, *ἐκ τῶν ἑκάστου ἀρχῶν*. Such is the *περὶ ὅ*, such *τὸ γένος τὸ ὑποκαίμενον*. "Number," "magnitude" are mentioned as examples; it is the *γένος*, the concept, and we shall have to consider this part of the *ἀρχὴ* in a later paper.

The "axioms," on the other hand, are the *ἐξ ὧν*, the *κοίναι*, as opposed to the *ἴδιαι*, in each proof. As examples of "axioms" are mentioned the principle of contradiction, of excluded middle, that equals subtracted from equals are equal.

What is the nature of the *ἀρχὴ* on which all cognition rests? Aristotle concludes that it must be *true*, the *first, immediate, better known, earlier,* and in *causal relation to the conclusion.* These determinations seem indeed necessary from the Aristotelian point of view. Cognition appears like a building which needs must rest on a secure foundation. And Aristotle has given the reasons for each one of these properties of the *ἀρχή*. It will be necessary to examine them.

The first demands "truth" for the *ἀρχὴ*, a truth which does in no way depend on that which follows from it, neither does itself follow from any other truth; truth belongs to the axiom as such, apart from anything else; the *truth* of the *ἀρχὴ* is *isolated,* even though the *ἀρχὴ* itself stands in relation to other propositions. And it is recognized "immediately"; it is self-evident, for we know it "in still higher degree" than any of the derived propositions. If any proposition is presented, and it is an *ἀρχὴ*, we must be able to decide by direct inspection whether it is true or not; and *vice versa.*

After what has been said in the first paper, it will be apparent that these arguments move in the realm of "psychology of cognition" and of "critique of cognition"; for they deal with problems concerning the *truth* and the *subject-relation* of logical entities. But it was necessary to inspect them here, because they serve, in their part, to establish the *radical distinction* between the *ἀρχὴ* and the "theorems." If Aristotle adds therefore that the "axioms" must

[5] *Loc. cit.*

be a "first," it is clear that he refers, not to any accidental order of presentation in a given system, but to an *objective* order, to a relation between the logical entities themselves. The "first" is not merely "unproved," but "*indemonstrable*" (*ἐκ πρώτων δ' ἀναποδείκτων*) *i. e.*, that which *can not* be proved; and which need not be proved, because its certainty is superior to all proof.

The determinations "better known" and "earlier" seem at first sight to refer merely to a subject-relation; but Aristotle makes the distinction between the *πρότερον πρὸς ἡμᾶς*, and the *πρότερον τῇ φύσει*; it is the latter he means here, and it stands merely for "*generality*"; for, according to him, "better known and earlier in itself" is that which is further away from sense-perception; and "the most general is furthest away." Aristotle applies here to propositions a distinction, which is of fundamental importance in his theory of concepts, namely, with respect to "generality"; he seems to assume that, given two propositions p_1 and p_2, they always have a definite relation of generality. And yet it is by no means self-evident that this assumption must hold; on the contrary, it may be doubted whether it really does hold. Aristotle had, no doubt, in his mind examples of syllogisms of the "all men are mortal" type; and here the distinction is simple: "all men are mortal" is more general than "Socrates is mortal." It was a dogma of the traditional logic that all proofs in mathematics are of this type. Kant took exception to this dogma; Sigwart tried to formulate a difference in his "*Logik*"; but most clearly the difference is exhibited by the modern work in the algebra of relatives. Now take Sigwart's example: "if the corresponding sides of two triangles are in proportion, the corresponding angles are equal; if the corresponding angles of two triangles are equal, the triangles are similar; therefore, if the sides of two triangles are in proportion, the triangles are similar." This, as Sigwart rightly remarks, looks like Barbara, but is, in reality, *himmelweit davon verschreden.* The propositions do not simply state "subsumptions," but relations of a different kind. *But which of these propositions is the most general?* In a similar way, which proposition is more general: Euclid's parallel axiom, or the theorem about the sum of the angles in a triangle?

This criticism of the concept of "generality," as applied to propositions, merely introduces the critique of "axioms," which the modern work necessitates. Generality might be surrendered; it would not make Aristotle's account any more acceptable. The difference between the *ἀρχὴ* and any theorem would still be radical, absolute, inherent; the proof, according to Aristotle, *can* proceed in but one direction: *from* certain propositions (the *ἀρχὴ*), *to* certain others: *it never can go in the opposite direction,* at least not as a

deductive proof; it is impossible, if A is used as a basis for proving B, that B should be used to prove A. We can, from "all men are mortal," deduce "Socrates is mortal," but not inversely. This inverse procedure, prohibited by the Aristotelian theory of a deductive system, we can, however, easily exhibit in mathematics, at least in a large class of cases. Thus if, in plane Euclidean geometry, the opposite sides of a quadrilateral are parallel, it can be proved that they are equal; and *vice versa*. This may not seem very remarkable; but it applies to the "*axioms.*" By means of the "parallel axiom" we can prove the theorem about the sum of the angles in a triangle; and *vice versa*. Either one can therefore be "proved," provided the other is accepted. "Indemonstrable" is not a property which inheres in a proposition as such, as Aristotle claimed, but in a proposition *in a system, i. e.,* in relation to others. Take it out of this definite systematic arrangement with its definite *order,* and the term "indemonstrable" becomes meaningless.

Mathematicians have therefore more and more avoided the term "axiom," and speak of "postulates," or "hypotheses," to express that the starting-point of the system is merely "assumed," that the "fundamental propositions" of a system are merely "unproved," but might be "provable" propositions in a different arrangement. Which propositions are chosen as postulates and which as theorems is *accidental,* namely, to the particular arrangement; it is not a logical property of certain propositions to be "presupposed" by others.

This states somewhat radically what has been demonstrated, however, thus far only in part. Mathematicians have worked out numerous "sets of postulates," which exhibit this interchange between postulates and theorems. Is there any limit to this interchangeability? Are there any propositions which always *must* be among the postulates? The views regarding this *degree* of interchangeability differ somewhat; some, *e. g.,* Bertrand Russell, hold that it is possible only within certain (though as yet undefined) limits; others, as E. V. Huntington, incline to the view that this interchange can go on indefinitely; and I myself incline to the latter view; the presumption, at least so far as mathematics is concerned, is strongly in favor of it.

But, some writers hold, whilst this may be true for mathematics, it is not true for logic; such propositions as the "syllogism" *must* be among the "fundamental principles." Two arguments are advanced to support this view.

First, it is held, these propositions are "absolutely true," in the sense that they can not possibly be denied; or, as Professor Royce puts it, their denial implies their own assertion. It would, therefore, be absurd to begin with any other "postulates" if these "sure" and "undeniable" propositions are at our disposal. This view is closely

allied to the Aristotelian; it differs from it in that it proposes a definite *logical criterion* for testing the absolute truth of a proposition; it does not rely on psychological "self-evidence"; the principles which are thus declared "absolutely true" by the criterion "that which is implied by its own denial is absolutely true" may indeed be very much lacking in psychological self-evidence.

The second argument, used by Russell and others, is that the very nature of proof demands certain propositions, such as the "principle of the syllogism," that they must therefore be amongst the "postulates," for no proof is possible without them.

I can not consider the first argument here, as it belongs to "critique of cognition"; I have treated it in a paper on "A Class of Invalid Criteria of Truth," in which I believe to have shown that "absolute truth" in any such sense as the argument understands it, does not exist. *Truth is always relative to its particular problem.*

The second argument, however, contains the recognition of an important principle, though it unduly restricts it to such postulates as the "principle of the syllogism." We may state it thus: any deductive system of logic must have among its "postulates" the "principle of the syllogism," *or its equivalent.* But this holds true of all postulates and for all deductive systems. In other words: we do not interchange propositions at haphazard in selecting new sets of postulates from the propositions of the system. *We choose equivalent sets.* But "equivalent" propositions may in all other respects be widely *different;* they are by no means necessarily *identical.* I shall revert to this question of equivalence, which seems of very great importance, in a later paper. For the present purpose it is sufficient to say that equivalence *regulates* but does not *limit* the interchange of propositions in a system. (Incidentally it may be remarked that the "principle of the syllogism" is *not* among *Whitehead's* set of postulates for the algebra of logic, but is *proved* as a *theorem.*)[6] Russell's own position seems to have undergone a change regarding the question of "axioms" and in the direction toward the position taken in this paper. As evidence I quote merely two passages from the "Principles of Mathematics," published in 1903, and their amendments in the "Principia Mathematica" published, in conjunction with Whitehead, in 1910. The passages are: "A definition of implication is quite impossible" (p. 14), supporting Peano's view regarding the existence of "indefinables"; but "Principia Mathematica" *does* define implication! The other quotation is: "Some indemonstrables there must be; and some propositions, such as the

[6] Whitehead, "Universal Algebra"; or E. V. Huntington's paper, "Sets of Independent Postulates for the Algebra of Logic," in the *Transactions of the American Mathematical Society,* July, 1904.

syllogism, must be of the number, since no demonstration is possible without them.''[7] In the same connection Russel upholds the distinction between ''unproved'' and ''indemonstrable'' propositions, and explicitly asserts the existence of ''indemonstrables.'' But ''Principia Mathematica'' is less explicit on the point and seems to me in perfect harmony with the view defended in the present paper. ''Thus deduction depends upon the relation of implication, and every deductive system must contain among its premises as many of the properties of implication as are necessary to legitimate the ordinary procedure of deduction'' (p. 94). Only why not frankly say that logic could be developed altogether without even mentioning implication? Mrs. Franklin has developed a system which takes ''inconsistency'' as its fundamental concept; Professor Royce, by means of his 0-relation, is able to dispense with ''implication'' as a fundamental concept; Whitehead did not require it. In all these cases it was easy to ''define'' implication, and ''prove'' the laws of the syllogism.

If this position, that there are no ''indemonstrables,'' is accepted as the outcome of the modern work, an enormous freedom is gained for logic as well as for mathematics. For then only are we able to rid ourselves successfully of the confusion of purely logical with psychological questions. Ever since Kant has the attempt been made to separate these; but ''logical'' necessity was ever so closely allied with a purely psychological ''not-being-able-to think otherwise'' that a confusion was unavoidable.

But, whilst it is demonstrated that an interchange between ''postulates'' and ''theorems'' is possible, and whilst it is at least probable that this interchange has no logical limitations, it is still possible, and necessary, to *choose,* from the various possible sets of postulates, certain ones as *preferable,* provided the criteria of preference are stated or indicated. And if we look back to Aristotle's theory, we can say: he stated as principle of selection prominently this: ''Choose a set of postulates such that it contains the *most general* propositions of the system.'' And our main objection to Aristotle's theory may now be stated thus: he incorporated his principle of selection into his theory of the *structure* of a deductive system, basing on it an *absolute* distinction between ''fundamental principles'' and ''theorems,'' and denying the possibility of *other* principles of selection. And in this he was wrong. It is not necessary to always prefer the ''most general'' principles. And it may be well to elucidate this by referring to *other* possible principles of selection which have played an important rôle in the history of science. Thus it is interesting to notice that if philosophers have been dominated in

[7] ''Principles of Mathematics,'' page 15.

their procedure by "generality," mathematicians have striven for "simplicity" of their starting-point. In "geometry" they do not begin with the general properties of curves, but with postulates about straight lines and points; in "algebra" they start with the properties of the "natural" numbers, before developing the properties of "complex quantities"; propositions are not taken in their most general meaning at first, but proved for a limited field and gradually "extended" by proper methods of procedure. In all these it is the "simpler" from which mathematicians start, the more "general" they may strive to reach afterwards. And this procedure is not dictated by any logical necessity; it could be, and sometimes is, inverted. Instead of starting, as Weierstrass did, with the simple properties of "power series" and extending these gradually so as to reach the more general functions, we may, with Riemann, begin by studying the general properties of functions and "apply" these to "algebraic," etc., functions. But in the two cases we obtain a different system of the "Theory of Functions."

And may we not, in the selection of sets of postulates, base our preference on purely psychological grounds, such as "evidence"? Why not, indeed? We may admit that "evidence" is not a logical property of propositions, but depends also on the "subject" and his natural surroundings; and what we suppose will be "evident" to our hearers may be far from it! Nevertheless, if a teacher should choose to present a subject in the deductive system form, he would be likely to start, as best he could, with postulates which, to the pupils, have at least a certain degree of "evidence" or even "familiarity." He would not be likely to start a study of "arithmetic" on the basis of Dedekind's *Was sind und was sollen die Zahlen;* he would not choose many of the "primitive propositions" of the "Principia Mathematica"! To Aristotle the "general" *was* the "better known," the deductive procedure the best for *arriving* at cognition. We, who know better than Aristotle possibly could have, how much is really demanded by "logical rigor" may well doubt whether any subject should ever be first presented in a purely deductive form, and may be profoundly thankful that our mathematical school-books fall so palpably short of their much-boasted rigor.

From here the real necessity of a "critique of cognition" will become apparent. If a system, such as geometry, can properly be presented in but one form, we may need a code of rules to detect errors in reasoning. Beyond this, what demand is there for criteria to determine the *logical value* of a given system? If, however, the same content can be presented in many, perhaps an infinity of different forms, all logically faultless, we are put before the questions: how shall we select, and by what ideals shall we be guided in our

selection? What do we even mean by saying: this system is *true?* For now we can no longer answer: because it follows from absolutely true and self-evident propositions; the theorems of one are the postulates of another, and this simple transference has not suddenly increased their truth value from the "to be proved" to the "undeniable"! It is curious to notice the attitude of some mathematical philosophers in this respect. They have always insisted on "proofs." And this demand could easily be justified so long as deductive systems were conceived to start from "axioms." Theorems, by their proofs, were made to participate in this "self-evidence" of the axioms. But how, if it is admitted that the starting-point is merely "postulated"? "In mathematics," say the authors of the "Principia Mathematica," "the greatest degree of self-evidence is usually not to be found quite at the beginning, but at some later point; hence the early deductions, until they reach this point, give reasons rather for believing the premises because true consequences follow from them, than for believing the consequences because they follow from the premises" (preface).

This certainly turns the Aristotelian conception of a deductive system upside down: the "postulates" borrow now their certainty from that of the "theorems"; for the latter are *"facts."* It is easily seen how this view, which is shared by others, could have been suggested by the recent work in mathematics. The "theorems" have remained much more invariant than the "postulates." There are numerous sets of postulates for Euclidean plane geometry; but they all leave the Pythagorean proposition "true"; and their own "truth" is, in part, tested by the criterion that this theorem *can* be deduced from them. However, calling a theorem a "fact" does not in any way show how this claim to certainty and truth is warranted. It does not usually mean that the propositions of mathematics are "empirical"; and it leaves open the possibility that the theorem does *not* hold if the "postulates" are suitably changed; *i. e.,* it leaves the possibility of other geometries in which the contradictory opposite of the particular theorem is also a "fact." The term "fact" is therefore used here merely to designate that which is "true" in a given system: it explains nothing, it warrants nothing; in particular, the implication of the ordinary use of the term "fact," namely, that it "holds" quite apart from the truth of anything else, is certainly not meant by those who use the term "fact" here.

It is characteristic of the difference between the attitudes of philosophers and of mathematicians that the question of "certainty," "undeniability" plays so large a rôle with the former, and so small a one with the latter. Through the whole history of philosophy runs this endeavor to find premises which will silence every possible

doubt; however slim the foundation, however insignificant in itself—a mere *cogito ergo sum,* perhaps—if only it is secure, if only it may serve to refute the radical skeptic! This timidity, this absorbing desire for security, this willingness to sacrifice everything to the feeling: here at last is a proposition that nobody can deny! would be ludicrous were it not so pathetic; for this abstemious self-denial was never rewarded. No sooner had one philosopher retired to his one lone rock, when another began to show that it was a mere drift! Is it not time to recognize that this whole procedure is vain; can philosophers not resign themselves to admit that the radical skeptic's position is impregnable—but also absolutely barren, and that there is no need whatever to *take* or even to invest this stronghold?

Mathematics has always passed as the paragon of security, of undeniability; how envious it must have made some philosophers! Yet, the fear of a possible skeptic has never been one of the obsessions of mathematicians. It is astonishing how often even legitimate objections were simply disregarded—until the proper time had come for their disposal. When the infinitesimal calculus was first invented, it rested on a foundation by no means irreproachable from a logical point of view. But Bishop Berkeley made small headway with his attacks on calculus. It was an efficient instrument in solving problems, which could not be solved by any other method—that was sufficient reason for keeping it. Had a logically superior and practically as efficient an instrument been offered to the mathematician, he would have been quick in discarding calculus. As it was, it was used constructively for over a hundred years before serious attempts were made to improve the logical foundations; more justly it ought to be said: before mathematicians were in a position to improve the foundations. Had they, however, discarded calculus in the first place on the ground of logical imperfections, they would never have been able to find the better foundations. All this is not said in justification of the mathematician's procedure; but it illustrates the difference; mathematicians are supremely interested in "construction": what will follow from certain data; whilst philosophers have concerned themselves primarily with the question: which premises are sufficiently secure to build upon; and this desire has led them to "self-evident" axioms, to "absolute" truth, and now to the assertion that the propositions of mathematics are "facts."

We are not concerned here with the problem of truth; we require merely that no theory of truth should be held which makes certain questions of structure impossible of solution. From the point of view of structure, the radical and inherent distinction between theorems and postulates must be denied. They are logically on a par. The decision—which propositions are chosen for postulates and which

proved as theorems—is determined by secondary considerations, prominent amongst which are those of "critique of cognition."

This denial of the radical and inherent distinction between theorems and postulates does, however, not imply the denial of the existence of "order" in a deductive system. *Which* propositions of a given system are chosen as postulates is logically irrelevant, but *that* certain ones be chosen is necessary if a deductive system is to result. In a given deductive system the difference between postulates and theorems is definite: the latter must be proved, the former are "premises" of these "proofs," themselves "unproved" and "indemonstrable," namely, in the given system. To say that the distinction is not radical means therefore merely that the same logical content could have been put into the deductive system form with a different selection of propositions for postulates and for theorems. Order is inherent in the deductive system form, but the particular order is accidental to the particular system. And for this the term "postulate" is meant to stand. It is a repudiation of Aristotelianism and a revival of Platonism.

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REVIEWS AND ABSTRACTS OF LITERATURE

Proceedings of the Aristotelian Society. 1910–1911. N. S., Vol. XI. Williams and Norgate.

As usual, the papers read before the Aristotelian Society, during its official year last completed, command the attention of every reader who would keep abreast of the philosophical times. With a few exceptions, the ten topics discussed and the opinions expressed about them are so important that a critical survey of them would greatly exceed the reviewer's proper bounds.

"Self as Subject and as Person," by S. Alexander, is an ingenious, pretty accurate, but not quite convincing analysis which aims to show "that the subject never is a presentation (or object), that the body of course is, and that the person (which is a combination of the former two) is partly presentation and partly not." There is, for Alexander, no pure ego to which objects are presented; the only ego is an experience, and this is not an object, but a bodily activity. (The term "object" here means of course any entity generically like a percept.) Different things require different actions in order to be cognized; and so, just as there is one type of behavior for knowing color, so too there is a distinct action for knowing one's "self." No peculiar complex of objects, no mere relation between past, present, and future things, constitute the material of this knowing. On the contrary, "just as the percept, the memory, the forecast of an external object as in the present, the past, or the future,

or as the concept of it as the law of its construction and action, so the "enjoyed" self which is enjoyed or "minded" by itself, and not contemplated by itself from the outside, exists in more or less partial, more or less complete, forms, and these forms have the same general characters as make external percepts, memories, and forecasts differ from one another" (p. 24). This is due to the fact that consciousness is an activity spread out in space and time and also is an activity toward differentiated spatio-temporal things.

The second paper is "On a Defect in the Customary Logical Formulation of Inductive Reasoning," by Bernard Bosanquet. It is an acute, thoroughly sound criticism of the doctrine, lately popularized afresh by Bergson, that the essential function of intelligence is to relate like to like. This view, says the writer, is invited and fostered by current statements about induction. The postulate that "same produces same" is equivocal. It properly means that *A*, under identical conditions, always has the same effect; but by Bergson and others it is construed to mean that the factors causally related are, for intelligence at least, identical. Now, except in a remote sense which is of no relevance here, the likeness of cause to effect is not postulated at all; on the contrary, it is denied. Neither does the intellectual operation of discovery and interpretation involve peculiarly the repetition of identical experiences. "It is . . . a continuing of some elements . . . into new forms of nexus," according to some principle which is not one of the elements related. The true principle underlying induction should therefore be stated more precisely; and Mr. Bosanquet suggests that we say that "every universal nexus tends to continue itself inventively in new matter." Mr. Bosanquet's incidental denial that induction is based upon elimination is not very persuasive.

Discussing "The Standpoint of Psychology," Mr. Benjamin Dumville insists that the realistic postulate has no business to invade the science of psychology, even though it is a useful metaphysical assumption. From the strictly scientific angle, the knowing process and whatever relations it may involve are "hidden in obscurity"; so deeply hidden, indeed, that the observer who will not pass beyond strict facts may not even speak of an "extra-mental thing" being related to a knower. Mr. Dumville points out at some length how Stout has preached this, but not practised it. But, however proper to the natural science of mind, subjective idealism is inadequate to philosophy; for "the process by which we come to know can not form a basis for the validity of what we know," and knowledge of the process is only a part of what we know and "must sink or swim with it." Hence pure psychology is an artificial view of reality. Before we approach it we must have some kind of philosophy. In defending these opinions, the writer criticizes a number of contemporaries extensively.

The aim of Mr. H. D. Oakeley's paper on "Reality and Value" is "to consider whether, starting from . . . the newer natural realism, anything can be done toward showing that for . . . the values of experience . . . there is a source which is objective or independent in the realistic sense." After an investigation, which is overcharged with comments on other men's remarks, the author concludes that "the reason for the way

in which purpose is seen to dominate human life, and reality in this sphere to increase in proportion to the degree in which ends are pursued, would seem to be that this is the struggle or conatus . . . from a lower to a higher grade of reality. Purpose would thus be an example of the tendency for any existence to increase its value."

Mr. Bertrand Russell, in his article entitled "Knowledge by Acquaintance and Knowledge by Description," attacks this question: "What is it that we know in cases where we know propositions about 'the so-and-so' without knowing who or what the so-and-so is?" In the course of his discussion Mr. Russell again demonstrates that the duality of meaning and denotation is not fundamental. The denotation is not a constituent of the proposition. This point has relevance in the defining of descriptive knowledge, which can be sharpened only after acceptance of the fundamental epistemological postulate that "every proposition which we can understand must be composed wholly of constituents with which we are acquainted." Acquaintance means direct cognitive relation to an object; and "we have descriptive knowledge of an object when we know that it is *the* object having some property or properties with which we are acquainted; that is to say, when we know that the property or properties in question belong to one object and no more. . . ." Accepting this definition, we discover that "our knowledge of physical objects and of other minds is only knowledge by description, the descriptions involved being usually such as involve sense-data." The descriptive judgment can not be explained as one which affirms identity of denotation with diversity of connotation, nor as one which affirms simple identity.

"The Theory of Psycho-Physical Parallelism as a Working Hypothesis in Psychology," by H. Wildon Carr, is a swift and severe repudiation of the pseudo-postulate of parallelism, pretty much in the Bergsonian spirit. The pseudo-postulate has been accepted by psychologists because the immediate data of consciousness do not form the subject-matter of a genuine science, inasmuch as they are pure qualities and therefore incapable of being measured and compared and expressed in formulas. But, even were the pseudo-postulate tenable, no science should assume it as a working hypothesis, for it is a metaphysic; physiology might as properly assume that thought is a secretion of the brain. The pseudo-postulate, however, is not tenable; and Mr. Carr shows, as Bergson has already done, that it contradicts equally both the idealistic and the realistic positions, and has meaning only in terms of the eighteenth-century substance philosophies, which exaggerated the metaphysical importance of mathematics and physics. Life is more than physics, though; and in the measure of its superiority we find the measure of parallelism's inadequacy. Mr. Carr ends with full allegiance to Bergson's interpretation of this last fact.

Mr. F. C. S. Schiller, under the caption of "Error," points out that most theories of error conceive it metaphysically as a thing, and not logically as a cognitive relation. "And yet," he goes on, "if we desire to give an account of the way men actually err, it is clear that what is needed is a logical analysis of human procedure." He then proceeds to

argue that "without a relation to a purpose there can be no Error"; for "relation to purpose is necessary to the existence of meaning as such, and therefore includes the spheres of both Truth and Error." "But this *sine qua non* of its existence at once equips it with a psychological pedigree." The difference between truth and error is ultimately one of value; the two are hence continuous and vary quantitatively. The illusion of stable truths arises from the fact that many purposes are relatively fixed. And the distinction between appearance and reality is a creation of purposive selection. By all odds the most interesting part of Mr. Schiller's paper is the last wherein he classifies types of truths and errors. He distinguishes eight classes: lies, errors, methodological fictions, methodological assumptions, postulates, validated truths, axiomatic truths, and jokes. In his discussion of these, he endeavors to check his critics' charge that he passes from the dictum, "all truths work," to "all that works is true."

"A New Law of Thought" is the title of an essay in which Miss E. E. Constance Jones contends that there is a "Law of Significant Assertion" logically prior to the so-called "Laws of Thought" mentioned in traditional logics; and that it is this: "What is asserted in *S is P* is identity of denotation of *S* and *P* with diversity of intension." The writer criticizes Mr. Russell's opinion that denotation is not a constituent of the proposition; her arguments, however, seem to assume what Mr. Russell takes pains to deny, namely, that not all judgments assert identities. One interesting case which she cites against Mr. Russell is the type of proposition, "The round-square is self-contradictory." How explain this, if meaning equals intension and there is no denotation in the case? "In intension, 'round square' can not be identified with 'self-contradictory'; the terms are differently defined." Furthermore, Miss Jones urges, the substitutions which Mr. Russell makes in supplying constants for variable in the formula of the descriptive judgment, can not be made unless the latter be construed as Miss Jones's law of significant assertion demands.

Mr. G. F. Stout, in "The Object of Thought and Real Being," demonstrates that "we always immediately think some reality which is indispensably required to supply the basis of truth and error. Further, the reference is not merely to the real universe as a whole, but to some special portion or aspect of it, which, if it is not determined in the way we believe, must be determined in some alternative way." In a very clear and somewhat novel manner, Mr. Stout develops the view, diametrically opposed to Mr. Bradley's, that "whatever is thought, in so far as it is thought, is therefore real." To reproduce any fragment of the argument leading to this would mar the latter; suffice it then to say that Mr. Stout centers his inquiry upon the nature of indeterminates and alternatives; and he shows that the mere employment of such in ordinary thinking presupposes genuine indetermination and alternatives which are more than "mental states." In closing, Mr. Stout contrasts his view with that of Mr. Bradley and that of Mr. Russell.

An unusual enterprise is pursued, in the last paper of the volume, by Mr. Alfred Caldecott. In "Emotionality: A Method of its Unifica-

tion," the author aims "to justify the search for a central Emotion which shall be able to enter as sovereign into the whole realm of Feeling and bring it into order." Of course, the emotion thus exalted is love; and the essay is largely a résumé of Baron Friedrich von Huegel's monumental biography and diagnosis of the conversion and later spiritual evolution of Catherine of Genoa.

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Chapters from Modern Psychology. JAMES ROWLAND ANGELL. New York: Longmans, Green, and Company. 1912. Pp. 308.

Through the generosity of Mrs. Katherine Spencer Leavitt a foundation has been established upon which eight lectures in psychology are to be delivered each year at Union College. This lectureship is endowed in memory of her father, the Rev. Ichabod Spencer, D.D., a graduate of Union College of the class of 1823, and is to be known as the Ichabod Spencer Lectureship in Psychology. The present volume contains the first series of lectures delivered upon this foundation during the early part of the year 1911.

It was highly desirable that the first series of lectures made possible by this important foundation should begin with a general introductory survey of the many departments of modern psychology. Such an introduction must of necessity be sketchy in character and can only point the way toward the more intensive presentation of special topics which later lecturers may undertake. The appointment of Professor Angell for this introductory task is amply justified by the impartial and readable discussions of the general subject matter and aims of psychology which the book contains.

The first chapter, on "General Psychology," discusses the analysis, classification, and rôle of the various mental elements and patterns (sensation, feeling, imagery, memory, instinct, interest, reasoning, etc.) with emphasis on genesis and function. In the following chapter, on "Physiological Psychology," are recited the familiar evidences, from comparative psychology and anatomy, experimental physiology, pathology and daily life, for the connection of mind and nervous system. The dependence of mental life on sense organs, on vascular and respiratory activities, on possibilities of motor expression, and the influence of emotional states on organic functions, are suggested, and it is made clear that the metaphysical questions of mind-body relation are no more psychological problems than they are physical and chemical.

The value of controlled conditions of observation and the genuine scientific character of modern psychology are illustrated in Chapter III., by simple descriptions of classical experiments in sensation, memory, attention, reaction time, writing, and the association method. No attempt is made to amplify either technique or results, the emphasis being throughout on the fact that there are "no fundamental forms of mental action" which have not been submitted to experimental inquiry, and on the prediction of "unlimited improvement and unceasing conquest" for

experimental methods. In the following chapter the subjects of dreams, hypnotism, multiple personality, telepathy, spiritism, muscle reading, and the subconscious are passed in sketchy review. The negative attitude of critical investigators is expressed and the reader invited either to master the evidence for himself or to hold judgment in suspense.

The first section of Chapter V., on "Individual Psychology," presents in a fairly representative way what little is really known on the subject. The second section, on "Applied Psychology," points out a fact that is not always sufficiently clearly apprehended—that applied psychology should concern itself in large measure, not so much with the amplification and direct application of academically formulated laws, but rather with the attempt to supply to practical fields adequate methods for securing and interpreting their own data. The value of psychology in education, medicine, jurisprudence, juvenile clinics, and business is illustrated, advertising receiving special attention.

The chapter on "Social and Race Psychology" enumerates various topics in which these types of inquiry are interested, and illustrates the character of the methods and the results. Among the topics considered are social tendencies and impulses, language, play, ceremonials and rituals, fine arts, imitation, invention, mob behavior, religious consciousness and institutions, racial types and interests.

The two remaining chapters are on "Animal and Genetic Psychology." In the first of these some of the problems and methods of those interested in the investigation of animal behavior are suggested and illustrated, and the many difficulties and sources of error pointed out. The few certified results which the lecturer is able to point to in this field present an adequate picture of the present stage of animal psychology, and perhaps at the same time of the possibilities in store for it when control of vital conditions is once achieved.

The final lecture is devoted to genetic questions, to the problem of working out the details of evolutionary mental patterns, and to a general retrospective view. The book contains an appendix presenting a brief list of references for general readers.

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JOURNALS AND NEW BOOKS

REVUE PHILOSOPHIQUE. March, 1912. *La sociologie juridique et la défense du droit subjectif* (pp. 225–247): G. Richard. – A defense of subjective right and a criticism of syndalism. *Le rôle latent des images motrices* (pp. 248–268): Th. Ribot. – This paper aims at directing attention to the preponderant rôle of motor elements in the unconscious activities of the mind. *La substitution psychique—II. Substitution et transformism* (pp. 269–289): F. Paulhan. – The life of the mind appears like a sort of whirlpool of substitutions, and substitution is traceable to systematic association and inhibition. *Revue critique. La morale de l'in-*

térêt et l'internationalisme: Fr. Paulhan. *Analyses et comptes rendus.* Windelband, *Die Philosophie im Deutschen Geitesleben:* M. Anthropos. G. de Greef, *Introduction à la Sociologie:* Dr. S. Jankelevitch. Th. Ruyssen, *Schopenhauer:* J. Bourdeau. H. Höffding, *La pensée humaine, ses formes et ses problèmes:* L. Poitevin. P. Menzer, *Kants Lehre von der Entwickelung in Natur und Geschichte:* J. L. Schlegel. *Revue des périodiques étrangers.*

THE AMERICAN JOURNAL OF PSYCHOLOGY. April, 1912. *Description vs. Statement of Meaning* (pp. 165–182): E. B. Titchener. – Investigations into the processes of thought give introspective description and information. There is no distinct division between the two. This article presents two kinds of reports, one descriptive psychology, the other logic or common sense. *Analysis of Consciousness under Negative Instruction* (pp. 183–213): L. R. Geissler. – Positive instruction sets up one determining tendency while negative instruction sets up two determining tendencies in the mental processes. *The Theory and Limitations of Introspection* (pp. 214–229): Raymond Dodge. – Introspection is an important indicator in special fields, but it must be supported by pathological, neurological, and experimental facts. *Psychopathology and Neuropathology: The Problems of Teaching and Research Contrasted* (pp. 231–235): E. E. Southard. – For teaching purposes it may be well to keep structure and function or even cerebral and psychic function apart, but for research no such distinctions should be made. *A Pigment Color System and Notation* (pp. 236–244): A. H. Munsell. *An Experimental Study of Musical Enjoyment* (pp. 245–308): Harry Porter Weld. – There are the analytic, motor, imaginative, and emotional types of musical enjoyment. Classified bibliography. *Psychoanalysis: A Review of Current Literature* (pp. 309–327): J. S. Van Teslaar. (1) S. Freud, *Die Handlung der Traumdeutung in der Psychoanalyse.* Zentralblatt f. Psychoanalyse, II., 1911, 109–113. (2) Rudolph Reitler, *Eine Sexualtheorie und ihre Beziehung zur Selbstmordsymbolik.* Zentralblatt f. Psychoanalyse, II., 1911, 114–121. (3) B. Dattner, *Eine psychoanalytische Studie an einem Stotterer.* Zentralblatt f. Psychoanalyse, II., 1911, 18–26. (4) N. Vaschide, *Le sommeil et les reves.* Paris, 1911, pp. 305. (5) John Mourly Vold, *Ueber den Traum.* (6) L. Loewenfeld, *Ueber die Sexualität im Kindesalter.* Sexual-probleme, VII., 1911, 444–534. (7) P. Nacke, *Ueber tardive Homosexualität.* Sexual-probleme, VII., 1911. (8) A. J. Storfer, *Zur Sonderstellung des Vatersmordes. Eine rechtsgeschichtliche und volkerpsychologische Studie.* Schriften zur angewanten Seelenkunde, No. 12, 1911, 34 pages. (9) F. Wittels, *Tragische Motive: Das Unbewusste von Held und Heldin. A Note on the Determination of the Retina's Sensitivity to Colored Light in Terms of Radiometric Units* (pp. 328–332): C. E. Ferree and Gertrude Rand. – A preliminary announcement of an experiment on the above subject. *Book Reviews.* Henri Bergson, *Creative Evolution:* B. H. Bode. J. Roscoe, *The Baganda: An Account of Their Native Customs and Be-*

liefs: E. B. T. FREDERICK. S. Breed, *The Development of Certain Instincts and Habits in the Chicks:* J. S. VAN TESLAAR. *Book Notes.* Franz Boas, *The Mind of Primitive Man.* Ikbal Kichen Shargha, *Examination of Professor William James's Psychology.* Wilhelm M. Wundt, *Zur Psychologie und Ethik.* William Stern, *Die differentielle Psychologie in ihren methodischen Grundlagen.* Ed. Claparède, *Experimental Pedagogy and the Psychology of the Child.* W. E. Burghardt Du Bois, *The Souls of Black Folks; Essays and Sketches.* Bureau of Aboriginal Affairs, *Report of the Control of the Aborigines in Formosa.* W. Barbrooke Grubb, *An Unknown People in an Unknown Land.* James G. Frazer, *The Golden Bough: A Study in Magic and Religion.* W. Y. Evans Wentz, *The Fairy-faith in Celtic Countries.* S. J. Holmes, *The Evolution of Animal Intelligence.* Frederic S. Lee, *Scientific Features of Modern Medicine.* Max Offner, *Mental Fatigue.* George D. Buchanan, *Biyonde cifrun.* Henri Bergson, *Laughter: An Essay on the Meaning of the Comic.* Carl Stumpf, *Die Anfange der Musik.* Rudolf Lehmann, *Lehrbuch der philosophischen Propaedeutik. Twenty-seventh Annual Report of the Bureau of American Ethnology to the Secretary of the Smithsonian Institution, 1905–06.* E. Boyd Barrett, *Motive-force and Motivation-tracts.* Gustav Gottlieb Wenzlaff, *The Mental Man.* Viktor Kraft, *Weltbegriff und Erkenntnisbegriff.* Heinrich Obersteiner, *Anleitung beim Studium des Baues der nervosen Zentralorganeim gesunden und kranken Zustande.* Hans Schoeneberger, *Psychologie und Padagogik des Gedachtnisses.* Carl Seher, *Die Seele des Gesunden und Kranken.* Jules Bordet, *Studies in Immunity.*

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NOTES AND NEWS

THE University of Louvain announces the publication of Book I. of Aristotle's "Metaphysics." With this volume the *Institut supérieur de Philosophie de Louvain* commences the publication of a series of studies on the philosophy of Aristotle having the general title: *Aristote: Oeuvres philosophiques: Traductions et études.* We quote from the circular: "A translation of the principal philosophical treatises, a critical commentary, at the culminating point of philological and historical progress, requires a collective effort. The undertaking will exhibit the necessary qualities of unity and accuracy the more clearly, since its authors are actuated by a common motive and possess similar points of view. At a university, founded, as was the University of Louvain, for the express purpose of teaching the Thomist philosophy, an exhaustive study is necessarily made of the works of the master of Saint Thomas

Aquinas; his works are read and analyzed with care. Naturally the thought presented itself to the students, who so familiarized themselves with Aristotle's theories, that they should arrange for publication, each upon his own responsibility, the result of their researches and reflections. The collection will comprise translations of various philosophical treatises and studies connected with the text and doctrines of Aristotle. Each volume will be published upon completion. The translation of the first book of the *Metaphysique,* which is the work of M. Gaston Colle, is the fruit of a long and conscientious labor, based upon a study of the commentaries of early writers and the best works of contemporary writers. The notes in connection with the volume aim to be primarily a key to the text. The difficulty and merit of the undertaking should command the gratitude of all philosophers."

JULES HENRI POINCARÉ, the illustrious mathematician, died suddenly on July 17. He was born on April 29, at Nancy, and was educated at the Lyceum of Nancy and at the Ecole Polytechnique. From the Universities of Cambridge and Oxford he received the degree of Doctor of Sciences. He was a Commander of the Legion of Honor, a member of the French Institute and of the Bureau of Longitudes, a professor of mathematics at the Ecole Polytechnique, and Chief Engineer of Mines. He was a member, also, of the Académie Française. The Paris newspapers are unanimous in asserting that M. Poincaré was the greatest scientist of modern France. The *Figaro* says his death is the greatest loss that the contemporary world of science could suffer.

PROFESSOR A. S. PRINGLE-PATTISON has just delivered the first course of his Gifford Lectures at the University of Aberdeen. The subject of the course was, "Contemporary Thought and Theism," and the ten lectures had the following titles: "Hume's Dialogues concerning Natural Religion"; "The Idea of Value as Determinative"; "The Philosophical Problem in the Latter Half of the Nineteenth Century"; "The Emancipating Influence of Biological Science"; "The Lower and the Higher Naturalism"; "Continuity of Process and the Emergence of Real Differences"; "Man as Organic to the World"; "Ethical Man, The Religion of Humanity"; "Positivism and Agnosticism"; "Retrospect and Provisional Conclusions."—*Philosophical Review.*

THE second International Congress on Moral Education will be held at The Hague, August 22 to August 27. The first congress was held at the University of London, September 25 to 29, 1908, and at that meeting a large number of the leading educationists of the world were present.

DR. ALFRED H. JONES, of Cornell University, has been appointed professor of philosophy at Brown University, to succeed Dr. Alexander Meiklejohn, recently elected to the presidency of Amherst College.

THE death of Dr. Shadworth H. Hodgson, the English metaphysician and philosopher, occurred June 13.

M. E. HAGGERTY, of Indiana University, has been promoted from assistant professor to associate professor of psychology.